

### **AMENDMENTS TO THE CLAIMS**

Claim 1 (Canceled)

Claim 2 (Currently amended): A method for presenting analysis of quantitative lipid metabolite profiles, comprising:

designating (a) a first quantitative lipid metabolite profile from a first biological sample and (b) a second quantitative lipid metabolite profile from a second biological sample that is different from the first biological sample;

identifying differences or similarities in a plurality of individual lipid metabolites between the first and second quantitative lipid metabolite profiles;

and displaying the identified differences or similarities on a heat map.

Claim 3 (Currently amended): The method of claim 2, wherein each quantitative lipid metabolite profile comprises quantitative measurements of at least two individual lipids and wherein the quantified measurements are obtained using an internal standard for at least one of the lipids.

Claim 4 (Currently amended): The method of claim 3, wherein the individual lipid metabolites are selected from the group consisting of tetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, octadecanoic acid, eicosanoic acid, docosanoic acid, tetracosanoic acid, 9-tetradecenoic acid, 9-hexadecenoic acid, 11-octadecenoic acid, 9-octadecenoic acid, 11-eicosenoic acid, 5,8,11-eicosatrienoic acid, 13-docosenoic acid, 15-tetracosenoic acid, 9,12,15-octadecatrienoic acid, 6,9,12,15-octadecatetraenoic acid, 11,14,17-eicosatrienoic acid, 8,11,14,17-eicosictetraenoic acid, 5,8,11,14,17-eicosapentaenoic acid, 7,10,13,16,19-docosapentaenoic acid, 4,7,10,13,16,19-docosahexaenoic acid, 6,9,12,15,18,21-tetracoshexaenoic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrienoic acid, 11,14-eicosadienoic acid, 8,11,14-eicosatrienoic acid, 5,8,11,14-eicosicatetraenoic acid, 13,16-docsadienoic acid, 7,10,13,16-docosicatetraenoic acid, 4,7,10,13,16-docosapentaenoic acid, 9-trans-hexadecenoic acid, 9-trans-octadecenoic acid, 8-eicosaenoic acid, 5-eicosaenoic acid,

plasmalogen fatty acids, 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, and 5,22-cholestadien-24b-ethyl-3b-ol, each as a compound or a component of a lipid molecule.

Claim 5 (Currently amended): The method of claim 2, wherein the quantitative lipid metabolite profiles each comprise a quantified measurement of individual lipids ~~lipid~~ in a lipid class.

Claim 6 (Currently amended): The method of claim 5, wherein the quantified measurement of the individual lipids ~~lipid~~ in the lipid class is obtained using an internal standard for the lipid class.

Claim 7 (Currently amended): The method of claim 5, wherein the individual lipid is selected from the group consisting of fatty acid 16:0, 18:0, 16:1n7; 18:1n7; 18:1n9; 18:3n3; 20:5n3; 22:5n3; 22:6n3; 18:2n6; 18:3n6; 20:3n6; and 20:4n6.

Claim 8 (Currently amended): The method of claim 5, wherein the individual lipid is a sterol selected from the group consisting of 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, and 5,22-cholestadien-24b-ethyl-3b-ol.

Claim 9 (Original): The method of claim 5, wherein the lipid class is selected from the group consisting of lyso-phosphatidylcholine, sphingomyelin, phosphatidylcholine, phosphatidylserine, phosphatidylinositol, phosphatidylethanolamine, cardiolipin, free fatty acids, monoacylglycerides, diacylglycerides, triacylglycerides, and cholesterol esters.

Claim 10 (Original): The method of claim 6, wherein the internal standard is selected from the group consisting of diheptadecanoyl phosphatidylcholine, dipentadecaenoyl phosphatidylethanolamine, tetraheptadecenoyl cardiolipin, diheptadecenoyl phosphatidylserine, pentadecenoyl sphingomyelin, heptadecanoyl lyso-phosphatidylcholine, triheptadecaenoyl glyceride, pentadecaenoic acid, heptadecanoic cholesterol ester and free fucosterol.

Claim 11 (Original): The method of claim 6, wherein the internal standard is heptadecanoic 1-heptadecanoyl-2-lyso-phosphatidylcholine for the lipid class of lysophospholipids, N-pentadecenoyl-D-erythro-sphingosylphorylcholine for the lipid class of sphingomyelin, 1,2-diheptadecanoylphosphatidylcholine for the lipid class of phosphatidylcholine, 1,2-diheptadecenoylphosphatidyl-ethanolamine for the lipid class of phosphatidylethanolamine, 1,2-diheptadecenoylphosphatidylserine for the lipid class of phosphatidylserine, pentadecaenoic acid for the lipid class of free fatty acids, triheptadecaenoic acid for the lipid class of triacylglycerides, 1,1',2,2'-tetraheptadecaenoyl cardiolipin for the lipid class of cardiolipin, cholesteryl heptadecanoate for the lipid class of cholesterol esters and stigmasterol for the lipid class of free sterols.

Claim 12 (Previously presented): The method of claim 2, wherein at least one of the quantitative lipid metabolite profiles is generated using a method comprising: separating a biological sample into fractions based on a plurality of lipid classes, wherein at least one quantitative internal standard is included for each lipid class; and measuring the quantities of a plurality of individual lipid metabolites in the fractions.

Claim 13 (Original): The method of claim 12, wherein the plurality of lipid classes comprises lyso-phosphatidylcholines, sphingomyelins, phosphatidylcholines, phosphatidylserines, phosphatidylinositols, phosphatidylethanolamines, cardiolipins, free fatty acids, monoacylglycerides, diacylglycerides, triacylglycerides, or cholesterol esters.

Claim 14 (Original): The method of claim 12, wherein the plurality of lipid metabolites comprises at least one of tetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, octadecanoic acid, eicosanoic acid, docosanoic acid, tetracosanoic acid, 9-tetradecenoic acid, 9-hexadecenoic acid, 11-octadecenoic acid, 9-octadecenoic acid, 11-eicosenoic acid, 5,8,11-eicosatrienoic acid, 13-docosenoic acid, 15-tetracosenoic acid, 9,12,15-octadecatrienoic acid, 6,9,12,15-octadecatetraenoic acid, 11,14,17-eicosatrienoic acid, 8,11,14,17-eicositetraenoic acid, 5,8,11,14,17-eicosapentaenoic acid, 7,10,13,16,19-docosapentaenoic acid, 4,7,10,13,16,19-docosahexaenoic acid, 6,9,12,15,18,21-

tetracoshexaenoic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrienoic acid, 11,14-eicosadienoic acid, 8,11,14-eicosatrienoic acid, 5,8,11,14-eicosatetraenoic acid, 13,16-docsadienoic acid, 7,10,13,16-docosicatetraenoic acid, 4,7,10,13,16-docosapentaenoic acid, 9-trans-hexadecenoic acid, 9-trans-octadecenoic acid, 8-eicosaenoic acid, 5-eicosaenoic acid, plasmalogen fatty acids, 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, or 5,22-cholestadien-24b-ethyl-3b-ol, each as a compound or a component of a lipid molecule.

Claim 15 (Original): The method of claim 12, wherein separating comprises chromatography.

Claim 16 (Original): The method of claim 12, wherein measuring comprises chromatography.

Claim 17 (Original): The method of claim 2, wherein displaying generates a web page for viewing.

Claims 18–55 (Canceled)

Claim 56 (Currently amended): The method of claim 2, wherein an increase or decrease in the individual lipid metabolite is indicated on the heat map by a color and the relevant amount of the increase or decrease is indicated by the intensity of the color.

Claim 57 (Previously presented): The method of claim 2, further comprising generating a written report.

Claim 58 (Previously presented): The method of claim 2, wherein the second quantitative lipid metabolite profile is a control lipomic profile.

Claim 59 (Canceled)